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Farm Equipment Leasing

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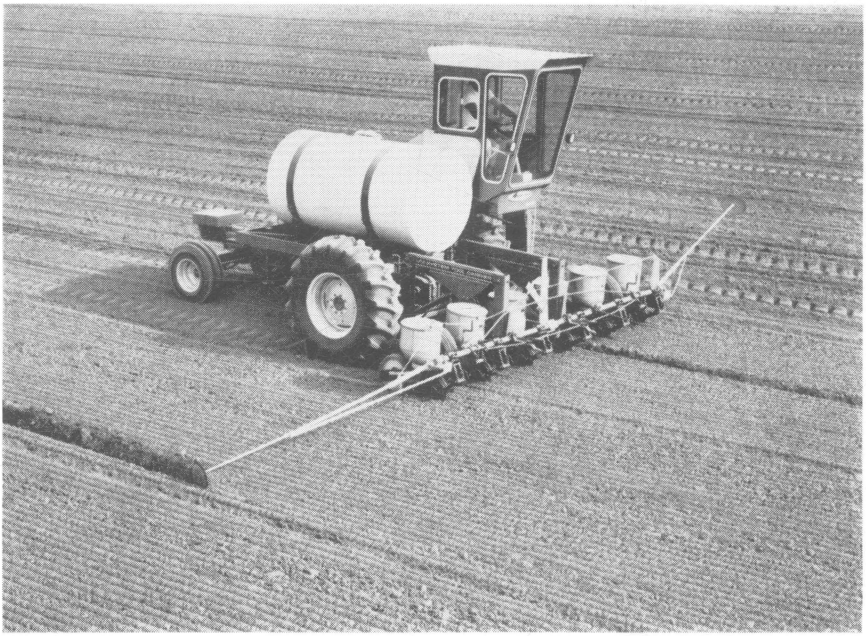

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
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ON THE COVER: Leasing gives Ohio farmers another method of controlling high capital inputs such as this self-propelled planting unit.

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JAMES E. HUNT and E. T. SHAUDYS

INTRODUCTION

Ownership is a traditional means for acquiring control of farm equipment. Farmers have exchanged equipment with neighbors and used custom services for many years. Only recently have farm operators considered leasing as a means of acquiring equipment, although leasing has been a time-honored means of controlling real estate.

Leasing is an established means for gaining control of equipment for many business activities. For example, the office equipment, construction, and transportation industries have leased equipment for many years and have participated in the rapid growth of equipment leasing.

Ohio farms increased 33 percent in acreage operated during the years 1955 to 1968, while the price of farm land increased by 90 percent during the same period. An average of approximately $50,000 of capital was invested in real estate and chattels per farm in 1940. Many Ohio operating farm units have a capital investment requirement of nearly $250,000 in 1969. A farm operator must be able to control, but not necessarily own, large amounts of capital.

Farm operators have been slow to accept non-ownership equipment control techniques. Pride of ownership, along with the desire for complete control of equipment, are cited by farmers as major reasons for this attitude. Peak seasonal equipment demand is an important reason why farmers prefer to own the equipment needed in their farm operation.

Ownership and use cost for equipment must be paid by the user of the equipment. For items such as planters, combines, and forage harvesters, this may be for a few days of use. With either ownership or leasing, the user must cover the full ownership costs.

EQUIPMENT CONTROL METHODS

The most desirable equipment control technique depends upon the particular farm situation. While several methods may be acceptable, one control technique is often more desirable. Usually a farm operator must select from among the following equipment control alternatives.

Lease

An equipment lease is essentially a capital transfer agreement granting control of the equipment by an owner (lessor) to a user (lessee) for a specific period of time for an agreed upon payment. The lease con-

tract is generally non-cancellable and does not entail or provide for ownership of the equipment. Most ownership responsibilities are accepted by the lessee, including insurance, maintenance, repairs, and taxes on the equipment. Except for the full-service type lease, repairs and maintenance of the equipment are the responsibility of the lessee.

The lessor provides an item of equipment for the lessee's use in much the same manner a lender might provide capital. At the end of the term, the lessor would expect to have his capital (money or equipment) returned, along with the agreed payment balance.

Financial Lease: The most common lease plan in use today is the long-term financial lease. The typical financial lease has a 5-year term. However, some have been written for 3 years and a few have been written for 10 years. These lease agreements are normally full "payback" instruments permitting the total cost of the equipment plus carrying charges to be recovered. This type of lease agreement is used in many non-agricultural industries. Money lending organizations, including finance companies, manufacturers, commercial banks, and equipment dealers, have served as lessors.

Lessors have established rigid requirements of agricultural lessees, such as a net worth requirement of $50,000 and ownership of real estate. Such requirements protect the lessor but frequently make it impossible for many farm operators to use leasing as an equipment acquisition control technique.

Few financial lessors recognize a residual or salvage value for the item of equipment upon expiration of the lease. Some plans include a provision for the acquisition of the equipment by the lessee at the termination of the lease for a nominal fee.

Short-Term Lease: A short-term lease may be written for one to three growing seasons. Typically, a salvage value is considered when computing the lease rate. The lessee can return the leased equipment to the lessor upon termination of the lease. Successful employment of a short-term lease depends on the lessor's ability to predict the value of the equipment at the end of the lease. Problems of obsolescence and title ownership are the lessor's responsibility. Financially capable equipment dealers have originated and successfully used the short-term lease.

Full-Service Lease: The lessor assumes total responsibility for the equipment, including repairs and associated maintenance costs, with the full service or maintenance lease. The trucking industry, with mobile units, a standardized type of service, similarity of operating conditions, and easily obtained cost information, has successfully used the full-service lease. One large truck lessor indicated that nearly every cost is

computerized, allowing most equipment maintenance requirements to be estimated accurately.

Full-service farm equipment leases have been patterned after the trucking industry but have not met with success. One firm which began writing full-service leases in 1962 has since allowed their leases to expire. Inaccessibility of equipment resulting in high overhead cost was cited as a major lease management problem. Because many agricultural machines are difficult to move long distances, large hauling costs were often incurred by the lessor. Another problem was the difficulty in predicting the lessor's variable cost of operating leased equipment. Agricultural equipment operating cost information is inadequate, particularly for the variety of working conditions, the types of jobs being performed, and the differences in operational care provided.

Equipment Rental

Farm operators may be able to rent equipment by the hour, day, week, or month from some equipment dealers. Equipment rental has been used by dealers with slow-selling used items in order to get some return on capital frozen in unsold equipment. Some dealers have successfully operated separate rental departments featuring a wide variety of equipment items. A major lessee disadvantage is the risk of not being able to obtain equipment when it is most needed. An advantage is that equipment use can be acquired with a modest capital commitment.

Custom Hire

Some labor is usually included as part of a custom operation. This service may be provided by neighboring farmers, custom specialists, or machinery dealers. Harvesting or other major operations such as planting, spraying, and fertilizer application are custom services available in Ohio.

Lack of complete control is cited as a disadvantage of using custom hire. Two commonly voiced criticisms are that the custom operator may not be available when needed and the quality of work performed may be inferior. An advantage is that equipment use may be acquired with a low capital outlay.

Ownership

Equipment can be purchased from current earnings, savings, or by mortgaging future earnings. The most complete degree of control is attained with ownership, as all decisions can be made by the owner. The major disadvantages include a high user cost if the machine is not used to capacity, the full risk of obsolescence, a large capital commitment, and operating and maintenance responsibility. The advantage of ownership is that machinery use cost may be below the cost of other acquisition techniques if adequate use is achieved.

Exchange

Exchange of equipment is another alternative used by some farm operators. Several farmers may work together, each owning a different item, and use the entire complement of equipment and labor cooperatively. Good operator working relationships must be maintained if this technique is to be used advantageously. Exchange permits small farmers to gain the economies of larger and more efficient machines.

FARMER'S DECISION-MAKING PROCESS

In the equipment acquisition decision-making process, both the physical and financial aspects are important. The following physical performance information is needed and must be assembled: 1) size of the job, 2) time available to complete the job, 3) skill and availability of labor, 4) method of performance, and 5) rates of accomplishment. With this information, the operator may be able to logically determine his physical equipment needs.

An operator may find that he must review his equipment requirements because of: 1) a change in the acreage operated, 2) unusual demand resulting from unanticipated events such as loss of labor or unseasonable weather, and 3) changes in crop production and marketing technology.

The capacity required (size of job) and the time available determine the type and size of machine needed. Two other considerations are: 1) whether the control technique is satisfactory and 2) compatibility of the new item of equipment with existing equipment and anticipated acquisitions.

The amount of control should be related to the cost of acquiring the equipment use. However, while one equipment acquisition method may be more advantageous in terms of monetary cost, other considerations influencing the decision are involved. These include flexibility in an operator's choice of future production methods, capital commitment required, personal property and income tax, obsolescence, service required, and prestige of ownership.

EVALUATING LEASE OR PURCHASE ALTERNATIVES

A break-even analysis can be a first step in evaluating the available equipment acquisition techniques. Leasing and purchase methods can be compared with rental or custom hire on a per unit basis. Rental and custom services are charged on a per unit basis. The average variable costs of equipment ownership or an equipment lease tend to remain constant per unit of use but fixed costs decline as the number of units is increased. This usually results in a downward sloping total unit cost curve for ownership. For example, owning a corn combine may cost

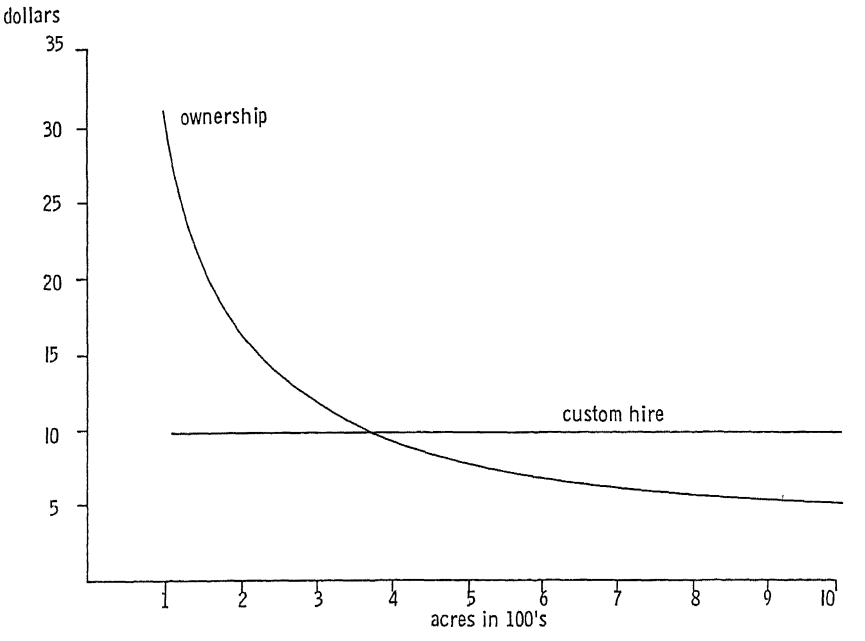

FIG. 1.—Cost per acre of ownership and custom hire for a corn combine, 5-year use period.

less than custom hire if 375 acres or more are harvested annually (Figure 1). It may be assumed in this type of analysis that lease costs will approximate ownership costs and rental charges will approximate custom hire charges.

A farm operator using a financial lease will experience costs similar to ownership with the exception of added financing costs. Expenses for repairs, fuel, oil, lubrication, insurance, taxes, and housing are identical for the lessee and owner.

There are at least two ways of evaluating a lease. The first may be called the use-cost method and can only be applied to a full-payback or financial lease. The following formula is used.

$$(r)\ \text{use-cost rate} = \frac{\text{total finance charge}}{\text{half of equipment list price}} \times \frac{\text{number of payments}}{\text{years}} \times \frac{1}{\text{number of payments} + 1}$$

The following examples show the computation of the use-cost rate.

Example 1

Equipment with a retail value of $10,000 is leased for a period of 5 years. Annual payments with a lease rate of 24 percent of the list price may be charged.

Each annual payment is $2,400 ($10,000 x .24)
5 payments are made
Aggregate value of lease is $12,000 ($2,400 x 5 years)
Value of lease $12,000
(less) Retail value 10,000
Total cost of lease (finance charge) ..... $ 2,000

$$(r) = \frac{2{,}000}{5{,}000} \times \frac{5}{5} \times \frac{1}{5+1}$$

$$(r) = 6.67\%$$

Example 2

Since nearly every lease plan in existence requires lease payments to be made at the beginning of each period, the above example does not reflect the true finance cost of the lease. In the following example, data from Example 1 is modified by prepayment.

Implications of prepayment:

a) Since payments are prepaid, in effect there are only four installments to be made. The first payment is actually the same as a down payment.

b) The original unpaid balance is thus reduced to $7,600 ($10,000 minus $2,400), which becomes in effect the lease face value.

$$(r) = \frac{2{,}000}{3{,}800} \times \frac{4}{4} \times \frac{1}{4+1}$$

$$(r) = 10.53\%$$

The use-cost analysis in Example 2 shows the true finance cost of a full-payback financial lease. This rate should then be compared with the effective purchase finance cost. If the operator could obtain a simple interest bank loan for purchase at 7%, the lease in Example 2 would be more costly than ownership. In fact, the farm operator must have an opportunity to earn a return of 10.53% or more before this lease would be desirable. The operator should also be aware that a salvage value is not normally included in a financial lease, thus resulting in a slightly lower cost of ownership if the item of equipment is retained at the end of the use period.

The application of the use-cost rate in an equipment acquisition decision can be useful since the finance cost is the important difference between the financial lease and ownership.

Another method, the application of a partial budget, can be used. The effects of income tax upon depreciation, released capital which may be invested in other productive endeavors, and interest can be considered. Two specific acquisition techniques should be compared. The capital released by the lower cost method can then be valued.

For example, assume a farmer could lease a $10,000 machine for $2,336 per year for 5 years. The machine can be purchased at a 10 percent discount and has a $2,000 salvage value at the end of 5 years. Investment credit and fast write-off depreciation are taken with purchase. A 30 percent income tax rate and an 8 percent interest rate are assumed. Costs are computed yearly, with items such as investment credit allocated over the 5-year period, thus making comparison possible. Expenses such as repairs, insurance, and shelter which remain constant for ownership or leasing are not included in these examples. The basis for computing depreciation is shown as follows:

List price	$10,000
(less) 10% discount	1,000
Purchase price	$ 9,000
(less) Salvage price	2,000
Cost basis	$ 7,000

Example 3 (page 10) assumes that the farmer *does not* have the cash needed to purchase the machine, although his credit is sound. Example 4, (page 10) assumes that the farmer *does* have $9,000 in cash reserves to purchase the machine.

These examples show the extreme cash positions of a farmer when considering an equipment acquisition decision. Example 3 shows the clear advantage to leasing and Example 4 has a difference of less than $25 per year.

Leasing is believed to be advantageous to a qualified farmer with limited capital since he may invest the capital elsewhere in his business for a higher return. If the farmer is in a high cash position, operating capital is released as shown in Example 4. However, if his cash position is low as in Example 3, the only capital released is borrowing capacity. Since borrowing has a cost, the return also must cover the cost of interest, increasing the needed return. The advantages of releasing capital diminish for a farmer in a low cash position. The farm operator must be in a strong financial condition to be considered for a lease and it is doubtful that leasing equipment would impair borrowing ability.

Example 3 (Low Cash Position)

Beginning Cost	Own	Lease
Lease payment*		$2,336
Capital recovery $7,000 x 1/5 year	$1,400	
Interest $31,000† x 1/5 x 8%	496	
	$1,896	$2,336
Adjustments		
Investment credit‡ $630 x 2/3 x 1/5	84	
Tax reduction because of:		
Lease payment as expense $2,336 x 30%		701
Depreciation $7,000 x 1/5 x 30%	420	
Fast write-off** $1,800 x 1/5 x 30%	108	
Interest $9,000 x 1/2 x 8% x 30%	108	
$2,336 x 8% x 30%		56
(less)	720	757
Total Net Yearly Costs	$1,176	$1,579

*From actual lease company plan.
†Based on an accumulation of capital committed at beginning of each year: $9,000 + $7,600 + $6,200 + $4,800 + $3,400 = $31,000.
‡7% of purchase price. Only 2/3 can be claimed since only retained 5 years.
**Additional first year depreciation allowance of 20% of purchase price.

Example 4 (High Cash Position)

Beginning Cost*	Own	Lease
Lease payment		$2,336
Capital recovery $7,000 x 1/5 year	$1,400	
Interest $31,000 x 1/5 x 8%	496	
	$1,896	$2,336
Adjustments		
Investment credit $630 x 2/3 x 1/5	84	
Value of released capital $6664† x 8%		533
Tax reduction because of:		
Lease payment as expense $1,803‡ x 30%		541
Depreciation $7,000 x 1/5 x 30%	420	
Fast write-off $1,800 x 1/5 x 30%	108	
(less)	612	1,074
Total Net Yearly Costs	$1,284	$1,262

*Same as Example 3.
†$9,000 — $2,336 = $6,664.
‡$2,336 — 533 = $1,803.

Note: The income tax rate does not change the outcome appreciably, as shown below:

	Example 3 (no cash)		Example 4 (all cash)	
Tax rate	Own	Lease	Own	Lease
30%	$1,176	$1,579	$1,284	$1,262
50%	752	1,074	932	901

The ability to view each technique on a yearly net cost basis simplifies comparisons and makes the partial budget a very flexible tool for use in equipment acquisition decisions.

LEASE CONTRACT

Provisions of the typical financial lease agreement are as follows:
The lessee shall:

(a) Designate where equipment will be used and keep it at such place at all times.
(b) Not affix or install accessories or equipment without written consent of lessor. Such accessories (except those which can be removed without affecting intended function) become property of lessor.
(c) Pay all expenses, fees, and taxes associated with the use and operation of the leased equipment.
(d) Assume all risks of loss or damage of the lease units.
(e) Provide for adequate liability and property damage insurance.
(f) Upon default, be liable for all unpaid lease payments due and any costs incurred by lessor in such action.

The lessor shall:

(a) Give or assign to the lessee any warranties of the manufacturer issued on the equipment.
(b) Have exclusive title of the equipment at all times.
(c) Guarantee to lessee, when not in default, peaceful possession of the equipment during the lease term.
(d) Have the right to inspect equipment at any time.

Option to buy: Another important provision which may be included in the lease contract is the option to buy. The lessee may have three options at the end of the lease period. He may return the equipment, renew the lease, or purchase (buy out) the equipment lease. A renewal of the lease may be at a somewhat lower rate than the initial lease terms.

Problems with the purchase alternative have been largely with Internal Revenue Service interpretations of the intent of the lease contract.

If the lessee actually intends to purchase the equipment at a later date, the agreement may be classified as a conditional purchase and thus all of the lease cost cannot be deducted as an expense.

The purchase option, if exercised, could materially change the equipment decision. Instead of disregarding the salvage value at the termination of the lease, when computing its cost, it would have the effect of lowering the effective cost of the lease as compared to purchase.

The Internal Revenue Service may treat the lease as a conditional sales contract if the rental payments materially exceed what would ordinarily be paid as rent for the equipment. This is difficult to ascertain since rental rates are not established for most farm equipment.

Other conditions causing the Internal Revenue Service to consider an agreement to be a sale rather than a lease are as follows:

- If portions of the periodic payments are made specifically applicable to an equity to be acquired by the taxpayer.
- If the taxpayer will acquire title upon payment of a stated amount of rentals required under the contract.
- If the total amount which must be paid for a relatively short period of use is an excessively large proportion of the total sum required to be paid to secure the transfer of the title.
- If the taxpayer will acquire title upon payment of an aggregate amount (i.e. total rental payments plus option price, if any) which approximates the price at which the taxpayer could have purchased the equipment when he entered into the agreement, plus interest and carrying charges.

Whether a lease with an option to purchase is actually a conditional sale is a question which needs to be decided at the beginning of the lease period on the basis of the contract, according to the Internal Revenue Service. This issue may not be postponed until the lessee-buyer makes up his mind to exercise the option.

SHORT-TERM EQUIPMENT LEASE

The short-term equipment lease appears to meet many of the objections raised with conventional leases. Some of the main points of this lease are:

a. The equipment dealer acts as the lessor.

b. The lease should have a maximum of 3 years with a minimum of 1 season.

c. Salvage value would be recognized. The "as-is" price in the Official Tractor and Farm Equipment Guide or similar publication might be used with appropriate adjustments.

FIG. 2.—Forage harvesting is one of the custom services available to Ohio farmers.

d. The lease rate would be based on a percentage of list prices, which should also include freight and handling in the first year payment.

e. All costs associated with leasing such as interest, taxes, insurance, etc. are computed on a net basis. Profit accrues through normal equipment mark-up.

f. No maintenance would be provided by the lessor other than that covered by the standard manufacturer's warranty.

g. A seasonal checkup should be made by the dealer to insure proper operation of the leased equipment.

h. A discount on repairs for leased equipment could be offered. This would encourage completion of repairs as needed and should insure the dealer greater parts sales.

i. A purchase option could be included only if cleared with the Internal Revenue Service.

j. The lease rate will probably be between 20 and 25 percent per year for a 3-year lease.

SUMMARY AND CONCLUSIONS

The leasing of farm equipment has been increasing at a modest pace in agriculture in contrast to other industries where acceptance has been more rapid.

Leasing is not a means of acquiring equipment use at a low cost compared to ownership for many farmers. The more flexible short-term lease has a lower cost than most financial leases and deserves consideration.

Many factors must be taken into account when making an equipment acquisition decision. The acreage or hours of use per year, the purchase price paid, the cost of capital to the firm for the equipment, and risk of obsolescence are all important considerations.

Specific advantages of leasing equipment are the ability to predict costs in advance and the time saved in dealing or bargaining for equipment. There does not appear to be a clear advantage for leasing by high income operators, since the tax deductions allowed with ownership usually approach the lease payment in size.

The assumptions made for a lease or purchase decision for an individual farmer are important. Leasing tends to favor the farmer in a high cash position. Since the beginning farmer is usually not in such a position, the attractiveness of leasing for this individual may be limited.

A cost-return break-even analysis can be applied to determine if an operator should lease or purchase needed equipment items. In addition to the other economic factors such as flexibility and obsolescence, the use cost and partial budget should help the farm manager arrive at a rational equipment acquisition decision.

APPENDIX

Terminology

The following are definitions of terms used throughout this publication.

Equipment—The term equipment includes the major powered machines and related attachments used on farms in the United States.

Lessor—The party owning the equipment and making it available to the farmer or user.

Lessee—The farmer or user acquiring the use of the equipment by means of a lease contract.

Ownership—Holding legal title to property, thus allowing complete control and possession rights.

Purchase Agreement—A modification of ownership whereby the user contracts to purchase over a period of time, using the equipment as collateral. The user is allowed control and possession but legal title results only after all payments are fulfilled.

The State Is the Campus for Agricultural Research and Development

Ohio's major soil types and climatic conditions are represented at the Research Center's 12 locations. Thus, Center scientists can make field tests under conditions similar to those encountered by Ohio farmers.

Research is conducted by 13 departments on more than 6200 acres at Center headquarters in Wooster, ten branches, and The Ohio State University.

Center Headquarters, Wooster, Wayne County: 1953 acres

Eastern Ohio Resource Development Center, Caldwell, Noble County: 2053 acres

Jackson Branch, Jackson, Jackson County: 344 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Central Branch, Vickery, Erie County: 335 acres

Northwestern Branch, Hoytville, Wood County: 247 acres

Southeastern Branch, Carpenter, Meigs County: 330 acres

Southern Branch, Ripley, Brown County: 275 acres

Vegetable Crops Branch, Marietta, Washington County: 20 acres

Western Branch, South Charleston, Clark County: 428 acres